SAMS II

Payload Academy

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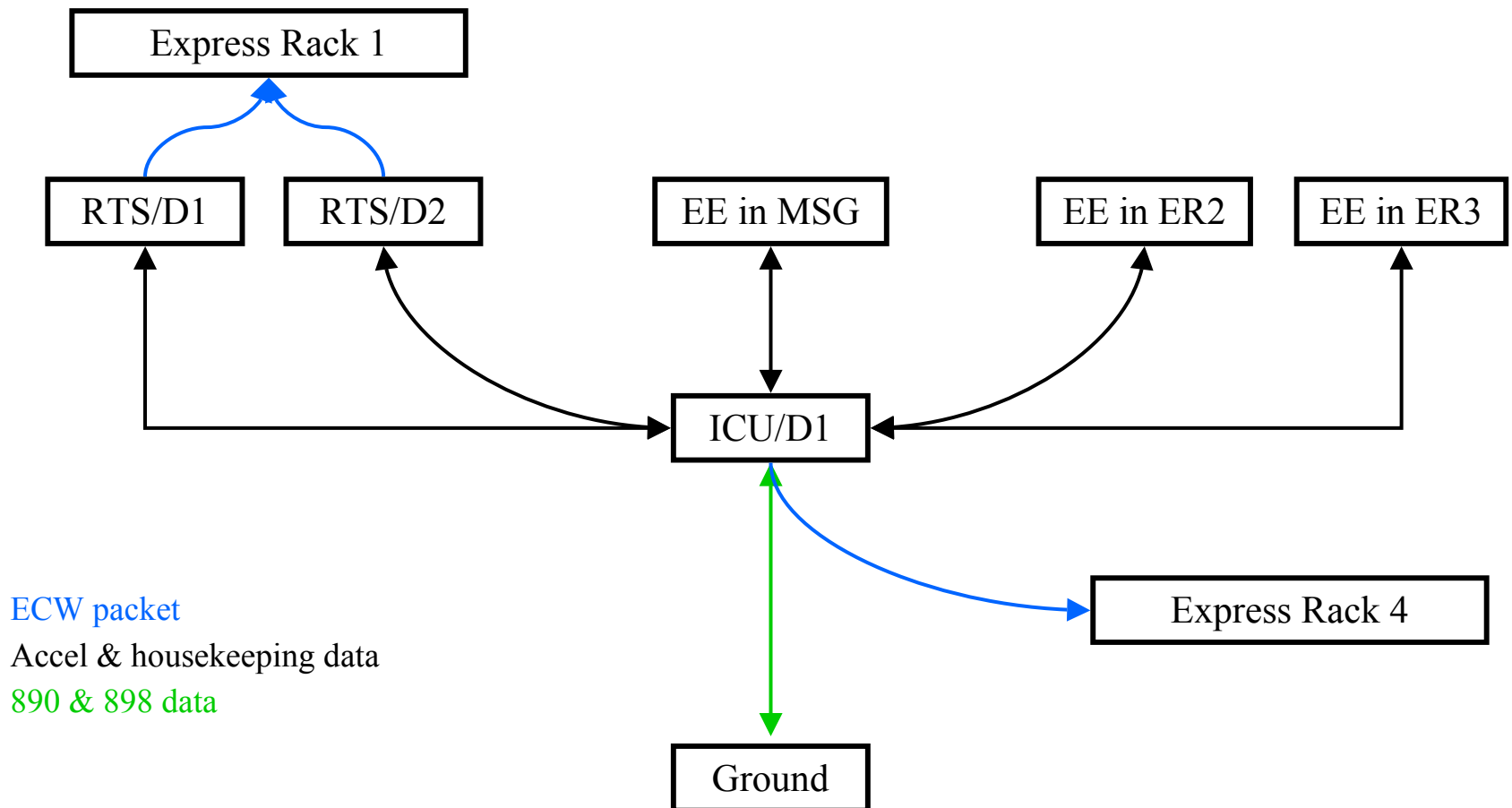helen.brown@grc.nasa.gov

Communications

- Rack to Rack Communication
  - Two way traffic between ICU Laptop and EE
    - Heaviest during boot-up of an EE
    - Nominal ops
      - Continuous data flow to the ICU from the EEs
      - Occasional traffic to an EE from the ICU
  - CAM tables must be configured with the MAC addresses of the ICU and every EE (PRO)
  - Usually on LAN 2

- ICU is communication hub
  - **ALL** data and commands are routed through ICU
  - ICU talks to the ground and each EE

Data

- SAMS data packets
  - ECW – sent to host rack, incorporated into APID 876
  - Acceleration – APID 890
  - Housekeeping – APID 898

- Each EE
  - Sends ECW packet at 1 Hz
    - Currently, only RTS/Drawers are monitored (Express Rack 1)
  - Sends acceleration and housekeeping data to the ICU for downlink

- ICU
  - Sends ECW packet at 1 Hz to its host (Express Rack 4)
  - Combines and downlinks all data from the SAMS system (890, 898)

Data Overview

ICU Laptop

- Battery
  - Allows for graceful shutdown of the unix-based OS
    - ICU Laptop detects loss of rack power
    - After 20 minutes, ICU Laptop turns main drawer power off (switch is moved to off position)
  - Level of charge is monitored and downlinked in APID 898
    - ICU Laptop will shut itself off if charge falls below predefined value

Payload Regulations

- Commanding
  - Shutdown ICU, Start an SE, and Stop an SE

- Parameter monitoring
  - SAMS does not staff console 24/7
  - POIC monitors the SAMS H&S and web page for off-nominal conditions

- Laptop reboot
  - Signature is no 890, 898, or ICU H&S data; comm is lost
  - Turn off all active EEs
  - Have crew reboot laptop and verify H&S returns
  - Power up EEs
    - Wait 10 minutes after ICU power up before starting EEs
    - Wait until H&S from EE verified before starting the next